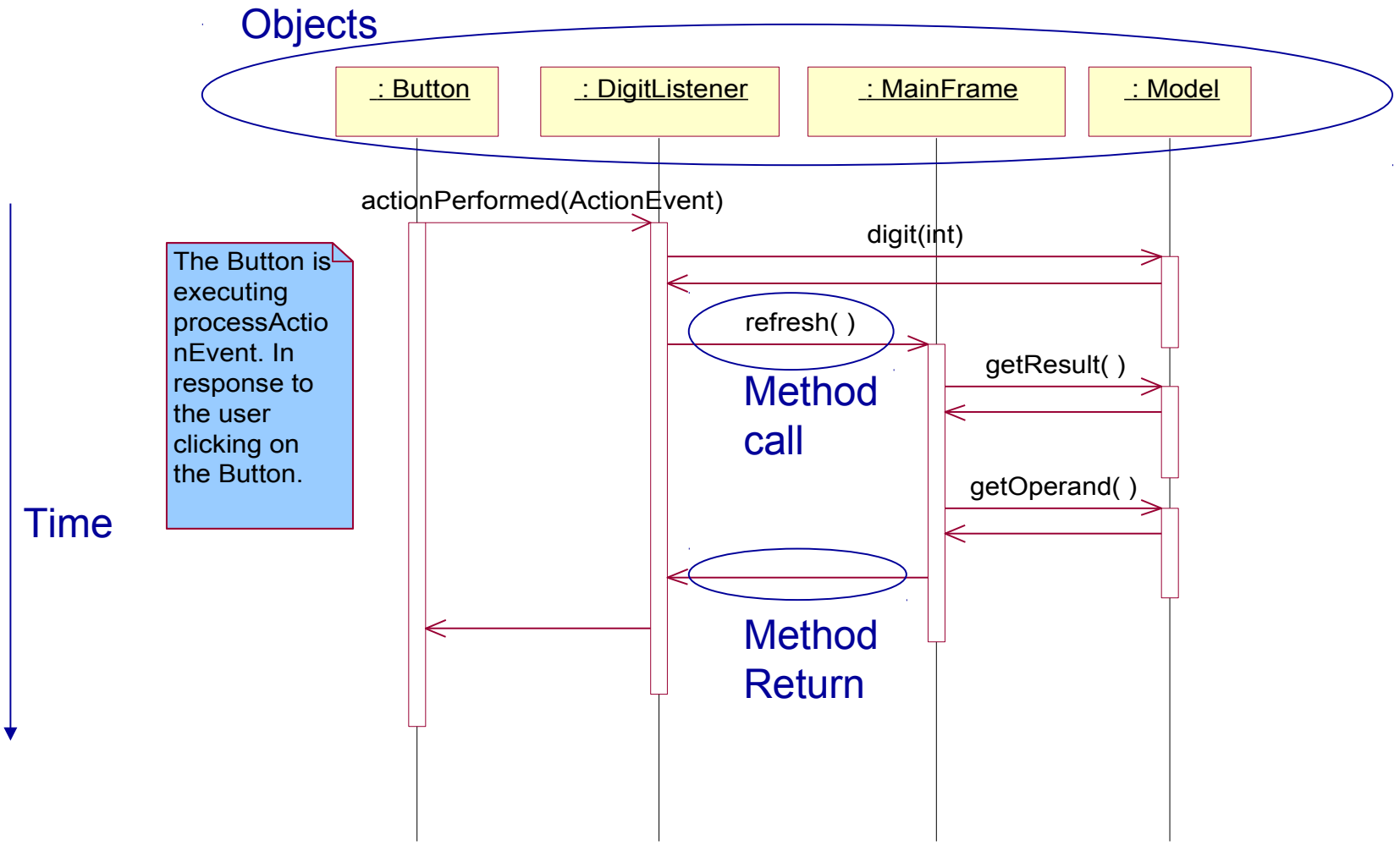
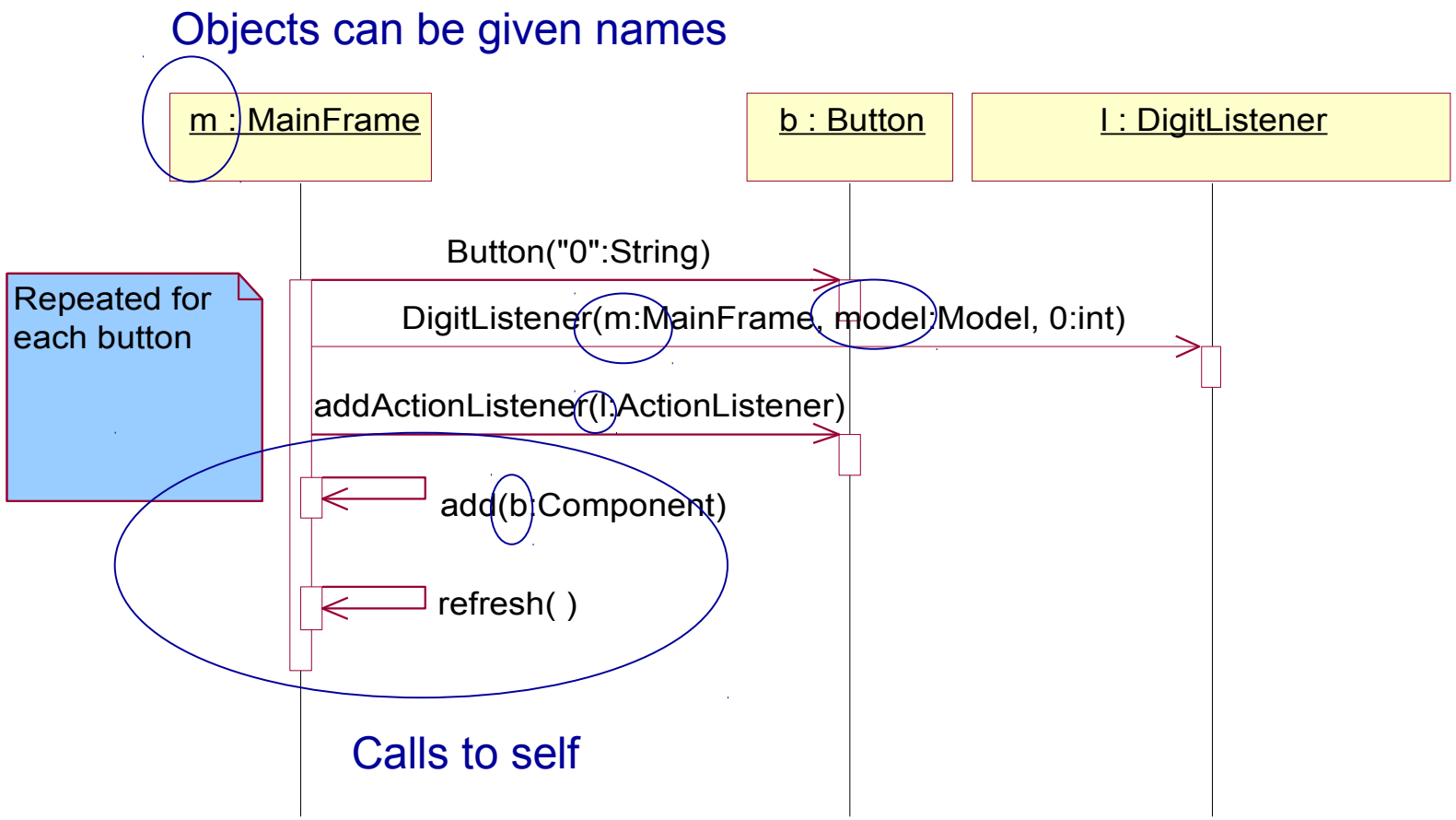
Sequence and Communication Diagrams

- Class Diagrams give a static view of the system. Time is not involved.
- We need also a way to describe the dynamics of the system.
- Sequence diagrams describe typical sequences of method calls.
- Example...

A sequence diagram



Named object and Calls to self



Show creation and deletion

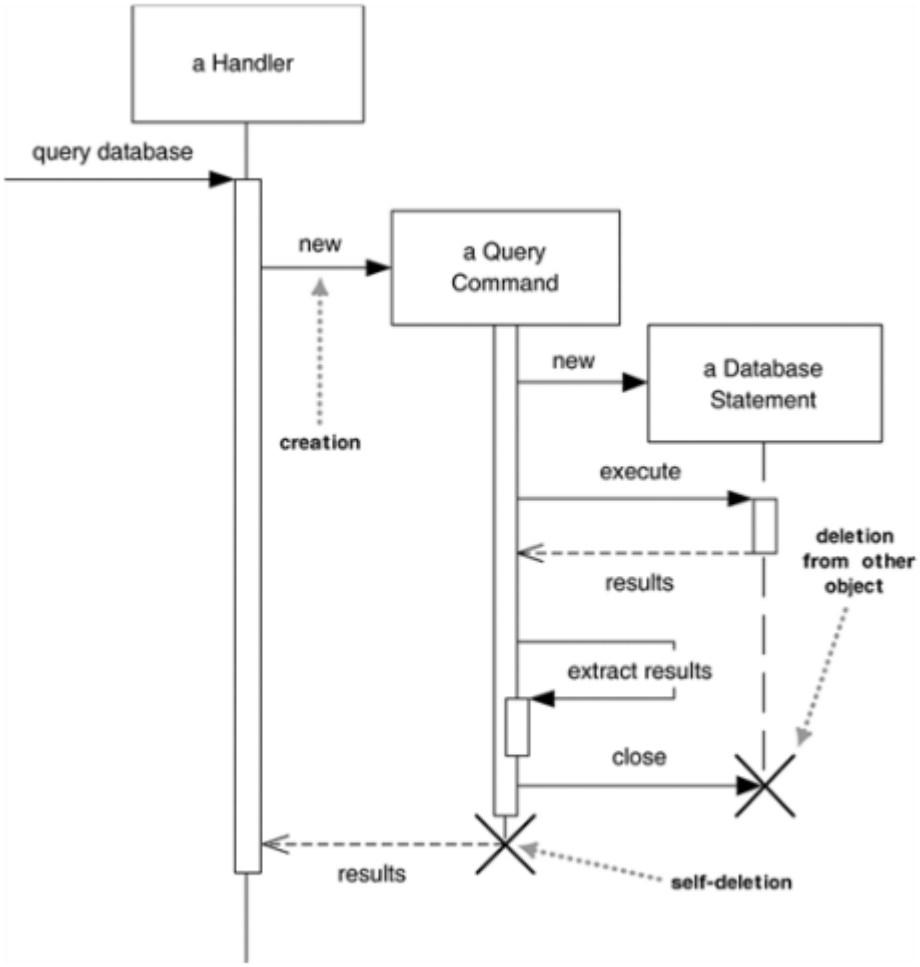


Figure 4.3. Creation and deletion of participants

- For a language with garbage collection, the big X just means the object is available for removal.

Loops and conditionals

- Sequence diagrams are not ideal for showing loops and conditionals
  - It is better to use pseudocode or other diagram (activity or state diagram)
  - Or simply describe your control flow in additional comments or documentations
- If you really want to, the following slide (from “UML Distilled”) gives an example of the notation...

- The following slide gives a sequence diagram for this procedure:

```
procedure dispatch
  foreach (lineitem)
    if (product.value > $10K)
      careful.dispatch
    else
      regular.dispatch
    end if
  end for
  if (needsConfirmation) messenger.confirm
end procedure
```

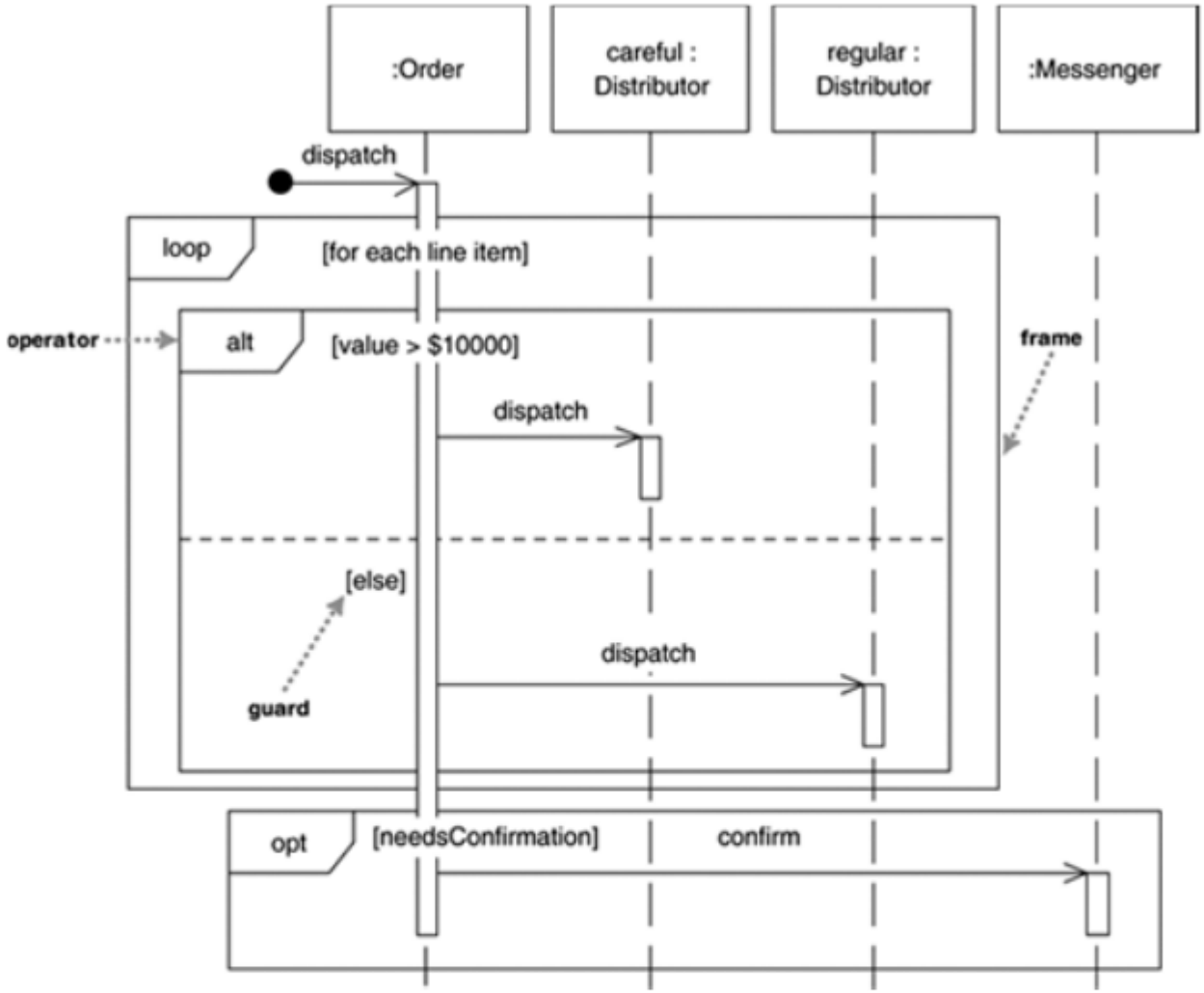


Figure 4.4. Interaction frames

```
procedure dispatch
  foreach (lineitem)
    if (product.value > $10K)
      careful.dispatch
    else
      regular.dispatch
    end if
  end for
  if (needsConfirmation) messenger.confirm
end procedure
```

Sequence Diagrams …

- Hint at but do not describe algorithms
  - For algorithms use pseudo code and/or activity charts and/or state diagrams
- Are good at showing typical or important interactions between a few objects
- Cut across levels of abstraction

Communication Diagrams

- Show the same information as sequence diagrams and also links between the objects
- Show the ordered tree structure of calls by hierarchical numbering